### (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

# (19) World Intellectual Property Organization International Bureau



## | 1886 | BINDER II BINE IN BOUNDE BOUNDE BOUND IN FERDER

#### (43) International Publication Date 18 August 2005 (18.08.2005)

#### PCT

# (10) International Publication Number WO 2005/076612 A1

- (51) International Patent Classification7: H04N 7/01, 5/44
- (21) International Application Number:

PCT/IB2005/050268

- (22) International Filing Date: 24 January 2005 (24.01.2005)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

04100410.2

4 February 2004 (04.02.2004) EI

- (71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): DE HAAN, Gerard [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven

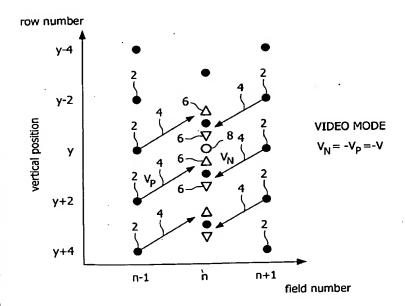
(NL). CIUHU, Calina [RO/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

- (74) Agents: GROENENDAAL, Antonius, W., M. et al.; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: MOTION COMPENSATED DE-INTERLACING WITH FILM MODE ADAPTATION

original sample
 O interpolated sample
 △ sample from the (n-1)-field
 ✓ sample from the (n+1)-field
 ✓ motion vector



(57) Abstract: The invention relates to a method for de-interlacing a hybrid video sequence using at least one estimated motion vector for interpolating pixels. Field for petition patents, typically occurring in film originated video material, disturb the function of de-interlacing algorithm designed to convert interlaced video single into progressively scanned video. Therefore a mode decision has to be applied for local adaptation to the film/video mode, which is possible by defining values for a first motion vector and a second motion vector, calculating at least one first pixel using at least one pixel of previous image and one first motion vector, calculating at least one second pixel using at least one pixel of a next image and one second motion vector, calculating a reliability of said first and the second motion vector by comparing at least said first pixel with at least said second pixel the first and said second motion vectors being pre-defined for said calculation of reliability, and estimation an actual value for a motion vector, which turned out to be most reliable for de-interlacing said image.



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Declaration under Rule 4.17:

as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY,

TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM). European patent (AT. BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

#### Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.